

STATE OF CALIFORNIA  
CALIFORNIA AIR RESOURCES BOARD  
STAFF REPORT

**ANALYSIS OF THE  
2012 PM<sub>2.5</sub> EMISSIONS INVENTORY SUBMITTAL  
TO THE STATE IMPLEMENTATION PLAN FOR  
THE SAN FRANCISCO BAY AREA**

I. BACKGROUND

The federal Clean Air Act (Act) establishes planning requirements for those areas that exceed the health-based National Ambient Air Quality Standards (standards). Areas are designated as nonattainment based on monitored exceedances of these standards. These nonattainment areas must develop and implement a State Implementation Plan (SIP) that demonstrates how they will attain the standards by specified dates.

In December 2006, the United States Environmental Protection Agency (U.S. EPA) lowered the 24-hour standard for fine particulate matter (PM<sub>2.5</sub>) from 65 µg/m<sup>3</sup> to 35 µg/m<sup>3</sup>. Effective December 14, 2009, U.S. EPA designated the San Francisco Bay Area in the Bay Area Air Quality Management District (District) as nonattainment for this more stringent 24-hour PM<sub>2.5</sub> standard. The subsequent SIP submittal deadline is December 14, 2012.

II. CLEAN DATA POLICY REQUIREMENTS

Under the U.S. EPA's *Clean Data Policy for the Fine Particulate National Ambient Air Quality Standards* (Clean Data Policy), areas designated nonattainment that subsequently attain the standard prior to the SIP submittal deadline are eligible for reduced regulatory requirements. Based on quality-assured federal reference method monitoring data for 2009-2011, the San Francisco Bay Area has demonstrated attainment of the 24-hour PM<sub>2.5</sub> standard (Table 1).

Table 1

98 <sup>th</sup> Percentile (µg/m <sup>3</sup> )				3-year Average (µg/m <sup>3</sup> )	
2008	2009	2010	2011	2008-2010 Design Value	2009-2011 Design Value
36	34.1	29.2	30.6	31	30

On December 8, 2011, The Air Resources Board (ARB) submitted a request to U.S. EPA to find the San Francisco Bay Area in attainment of the  $35 \mu\text{g}/\text{m}^3$  24-hour  $\text{PM}_{2.5}$  standard. This clean data finding under the Clean Data Policy suspends the majority of the planning elements under the Act, including the attainment demonstration, reasonably available control measures, and contingency elements of a SIP. The only planning element required under the Clean Data Policy is an emission inventory. Other requirements under the Act, specifically transportation conformity and new source review, are still applicable and are discussed in Section IV of this document.

### III. EVALUATION OF THE SAN FRANCISCO BAY AREA EMISSION INVENTORY

The District developed the *2010 Bay Area Winter Emissions Inventory for Primary  $\text{PM}_{2.5}$  and PM Precursors* (Emission Inventory SIP Submittal) to address the emission inventory requirements under the Clean Data Policy. The District Board of Directors adopted the Emission Inventory SIP Submittal at a public hearing on November 7, 2012.

An essential tool to support the evaluation, control, and mitigation of air pollutants, an emission inventory is a systematic listing of air pollutant sources, along with an accounting of the amount of pollutants emitted by each source or category over a given period of time. This accounting is an estimate of emissions, not direct ambient concentration measurements. U.S. EPA requires states to submit an attainment year inventory that includes directly emitted  $\text{PM}_{2.5}$  emissions, as well as emissions of precursors that contribute to the formation of particles formed through chemical reactions in the atmosphere, in particular, oxides of nitrogen ( $\text{NO}_x$ ), oxides of sulfur ( $\text{SO}_x$ ), reactive organic gases (ROG), and ammonia ( $\text{NH}_3$ ).

In addition, U.S. EPA allows the use of a seasonal inventory, rather than an annual inventory, when it has been demonstrated that the seasonal emissions have significantly led to the original nonattainment status. Analysis of daily air quality data has demonstrated that high  $\text{PM}_{2.5}$  concentrations occur primarily during the winter season. Exceedances during other seasons have been demonstrated to have been influenced by exceptional events, such as wildfires, but are outside of regulatory control.

The District's Emission Inventory SIP Submittal is the most up-to-date emission inventory for the San Francisco Bay Area. Based on the daily winter season  $\text{PM}_{2.5}$  emissions for 2010, it is typical of the 2008-2010 attainment demonstration years. The winter-time 2010 baseline inventory includes  $\text{PM}_{2.5}$ ,  $\text{NO}_x$ ,  $\text{SO}_x$ , ROG, and  $\text{NH}_3$  emissions. Residential wood burning and gasoline and diesel vehicles comprise about two thirds of the directly emitted  $\text{PM}_{2.5}$  emissions. On-road motor vehicles make up the largest source of  $\text{NO}_x$  and ROG emissions.

#### IV. OTHER CLEAN AIR ACT REQUIREMENTS

##### a. Conformity

The Act requires that procedures be in place to ensure that there is conformity of federal actions and federally funded transportation projects efforts to attain federal air quality standards. Under the Clean Data Policy, the District had a choice to either set transportation conformity budgets or allow the existing transportation conformity process to continue. The District chose to allow the existing process to continue. Under this process, the District works closely with the Metropolitan Transportation Commission to ensure that emissions from new transportation projects are less than the baseline (or attainment year) emissions.

##### b. New Source Review

U.S. EPA's New Source Review (NSR) requirements specify that there must be a method to identify and quantify allowable emissions of pollutants from construction and operation of major new or modified stationary sources in the District. Permits for new or modified stationary sources are required. This requirement is met with a revised District rule (Regulation 2) implementing NSR requirements.

#### V. STAFF RECOMMENDATION

ARB staff has reviewed the *2010 Bay Area Winter Emissions Inventory for Primary PM<sub>2.5</sub> and PM Precursors* and consulted with District staff during this review. ARB staff finds that the Emission Inventory SIP Submittal meets all applicable Act and Clean Data Policy requirements. Therefore, staff recommends that the Board adopt the Emission Inventory SIP Submittal as a revision to the California SIP for submittal to U.S. EPA.